

## Claims

## 1. A seed treatment formulation comprising

- 5 (a) at least one pesticidal agent; and
- (b) a carboxyl group containing polymer or copolymer selected from the group consisting of styrene butadiene rubber latex polymers with a glass transition temperature of  $-40^{\circ}\text{C}$  to  $5^{\circ}\text{C}$ , acrylate copolymers and ethylene vinyl acetate copolymers, wherein
- 10 (i) the acrylate copolymers consist of
- (a') acrylic acid, methacrylic acid or itaconic acid or a combination of at least two monomers selected from the group consisting of acrylic acid, methacrylic acid or itaconic acid; and
- 15 (b') monomers selected from the group consisting of alkyl (meth)acrylates such as methyl (meth)acrylate, ethyl (meth)acrylate, n-propyl (meth)acrylate, n-butyl (meth)acrylate, t-butyl (meth)acrylate, lauryl (meth)acrylate, cyclohexyl (meth)acrylate 2-ethylhexyl (meth)acrylate, stearyl (meth)acrylate, dodecyl(meth)acrylate and (meth)acrylamides such as dimethyl(meth)acrylamide, diethyl(meth)acrylamide, isopropyl(meth)acrylamide, (meth)acryloyl morpholine, dimethylaminomethyl(meth)acrylamide, dimethylaminoethyl(meth)acrylamide, dimethylaminopropyl(meth)acrylamide, diethylaminomethyl(meth)acrylamide, diethylaminoethyl(meth)acrylamide, diethylaminopropyl(meth)acrylamide; and
- 20 (c') monomers selected from the group consisting of 2-hydroxyethyl acrylate, 2-hydroxypropyl acrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, glycidyl (meth)acrylate; and
- 25 (d') monomers selected from the group consisting of styrene and styrene derivatives such as styrene,  $\alpha$ -methyl styrene, o-methyl styrene, m-methyl styrene p-methyl styrene, p-t-butyl styrene, p-chloromethyl styrene, p-styrenesulfonic acid and its sodium or potassium salt, o-methoxystyrene, m-methoxystyrene, p-methoxystyrene;
- 30 35 40

and have either a glass transition temperature of  $-40^{\circ}\text{C}$  to  $5^{\circ}\text{C}$ ; or, if the acrylate copolymers have a core/shell structure a glass transition temperature of the inner core of  $-60^{\circ}\text{C}$  to  $5^{\circ}\text{C}$  and of the outer shell of  $20^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ ; and

5

(ii) the ethylene vinyl acetate polymers consist of vinyl acetate, ethylene and acrylic acid and have a glass transition temperature of  $-25^{\circ}\text{C}$  to  $-5^{\circ}\text{C}$ .

- 10 2. A seed treatment formulation according to claim 1, wherein the carboxyl group containing polymer or copolymer is an acrylate copolymer as defined in claim 1.
3. A seed treatment formulation according to claim 1, wherein the copolymer is an ethylene vinyl acetate copolymer as defined in claim 1.
- 15 4. A seed treatment formulation according to claim 1 or 2, wherein the copolymer is an acrylate copolymer having a core shell structure.
5. A seed treatment formulation according to any of claims 1 to 4, wherein the amount of the carboxyl group containing polymer is between 0.5 and 15 % (w/w) on a solid content base.
- 20 6. Use of a carboxyl group containing polymer or copolymer selected from the group consisting of styrene butadiene rubber latex polymers with a glass transition temperature of  $-40^{\circ}\text{C}$  to  $5^{\circ}\text{C}$ , acrylate copolymers and ethylene vinyl acetate copolymers, wherein
- 25 (i) the acrylate copolymers consist of
- 30 (a') acrylic acid, methacrylic acid or itaconic acid or a combination of at least two monomers selected from the group consisting of acrylic acid, methacrylic acid or itaconic acid; and
- 35 (b') monomers selected from the group consisting of alkyl (meth)acrylates such as methyl (meth)acrylate, ethyl (meth)acrylate, n-propyl (meth)acrylate, n-butyl (meth)acrylate, t-butyl (meth)acrylate, lauryl (meth)acrylate, cyclohexyl (meth)acrylate 2-ethylhexyl (meth)acrylate, stearyl (meth)acrylate, dodecyl(meth)acrylate and (meth)acrylamides such as dimethyl(meth)acrylamide, diethyl(meth)acrylamide, isopropyl(meth)acrylamide, (meth)acryloyl morpholine, dimethylaminomethyl(meth)acrylamide, dimethylaminoethyl(meth)acrylamide, dimethylaminopropyl(meth)acrylamide, diethylami-
- 40

nomethyl(meth)acrylamide, diethylaminoethyl(meth)acrylamide, diethylaminopropyl(meth)acrylamide; and

- 5 (c') monomers selected from the group consisting of 2-hydroxyethyl acrylate, 2-hydroxypropyl acrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, glycidyl (meth)acrylate; and
- 10 (d') monomers selected from the group consisting of styrene and styrene derivatives such as styrene,  $\alpha$ -methyl styrene, o-methyl styrene, m-methyl styrene p-methyl styrene, p-t-butyl styrene, p-chloromethyl styrene, p-styrenesulfonic acid and its sodium or potassium salt, o-methoxystyrene, m-methoxystyrene, p-methoxystyrene;
- 15 and have either a glass transition temperature of  $-40^{\circ}\text{C}$  to  $5^{\circ}\text{C}$ ; or, if the acrylate copolymers have a core/shell structure a glass transition temperature of the inner core of  $-60^{\circ}\text{C}$  to  $5^{\circ}\text{C}$  and of the outer shell of  $20^{\circ}\text{C}$  to  $150^{\circ}\text{C}$ ; and
- 20 (ii) the ethylene vinyl acetate polymers consist of vinyl acetate, ethylene and acrylic acid and have a glass transition temperature of  $-25^{\circ}\text{C}$  to  $-5^{\circ}\text{C}$
- for the preparation of a seed treatment formulation.
- 25 7. Seeds treated with a formulation according to any of claims 1 to 5.
8. Rice seeds treated with a formulation according to any of claims 1 to 5.
9. A method for the treatment of a seeds prior sowing comprising the following steps:
- 30 a) applying to a solvent a formulation according to any of claims 1 to 5; and
- b) applying to a seed the mixture obtained in step a).
- 35 10. A method according to claim 9 for the treatment of a seeds prior sowing, wherein the seeds are rice seeds.
11. Use of a formulation according to any of claims 1 or 5 in a seed priming process.
- 40 12. A method for the treatment of a seeds prior sowing in a seed priming process comprising the following steps:

(i) hydration of seeds under controlled conditions followed by germination of seeds under controlled conditions;

(ii) treatment of seeds with a formulation according to any of claims 1 to 5;

5

wherein

(a) the hydration can be done in first and the treatment of seeds with a formulation according to any of claims 1 to 5 in a second step or,

10

(b) the treatment of seeds with a formulation according to any of claims 1 to 5 can be done first followed by the hydration of seeds.

13. A method for the control of undesired vegetation and/or combating phytopathogenic insects and/or phytopathogenic fungi comprising applying a formulation according to any of claims 1 to 5 to seeds prior sowing.

15

14. A method for the control of undesired vegetation and/or combating phytopathogenic insects and/or phytopathogenic fungi comprising applying a formulation according to any of claims 1 to 5 to rice seeds prior sowing.

20